United States Environmental Protection Agency

GLOBAL POSITIONING SYSTEMS- TECHNICAL IMPLEMENTATION GUIDANCE

Global Positioning Systems provide a rapid way to geographical locations used to monitor and assess environmental conditions and trends –for air, land, and water, and public health – at national, regional, State, and local levels. This locational data, when used with tools such as geographic information systems (GIS), enable EPA and its stakeholders to integrate, analyze, and present various types of data (e.g., air, water, land and toxics) in meaningful ways for specific locations. When the approaches in collecting GPS data are harmonized, the use and interoperability of locational data are greatly enhanced. Harmonization also increases the reliability of data entered into the National Spatial Data Infrastructure (NSDI), thereby significantly improving the utility of information gathered inter- and intra- organizationally. All stakeholders rely on known locational data, not only for environmental monitoring, but for homeland security as well.

GPS-TIG Vision

EPA will improve the interoperability of GPS data collected by all stakeholders by harmonizing the approaches used to collect GPS data. When the approaches in collecting GPS data are harmonized, the use and interoperability of locational data are greatly enhanced.

Purpose

As outlined in the Locational Data Improvement Project Plan (1996), the EPA has developed this manual to guide the process of collecting, editing, and exporting accurate spatial data using the Global Positioning System (GPS). Each Region will develop their own Standard Operation Procedures (SOP) manual on the regional specific GPS data collection procedures.

The intended audience of this document includes EPA staff, contractors, and grantees who will be:
1. involved in the planning of a GPS survey,
2. conducting a GPS survey,
3. maintaining and lending GPS equipment, and
4. responsible for processing data sets collected in the field and their conversion to various file formats for use in a Geographic Information System (GIS) database.

This technical implementation guidance will serve as a reference guide for Agency staff who will be using GPS equipment and also the individual(s) responsible for the maintenance of this equipment. Training on the proper use of the GPS equipment maintained by the regional offices will be required of Agency staff, contractors, and grantees prior to its use. Training will be provided either by Agency staff or through vendor contracts.

Goals of the GPS-TIG

- Each Stakeholder will develop their own Standard Operation Procedures (SOP) manual on the regional specific GPS data collection procedures
- Training on the proper use of the GPS equipment maintained by the regional offices will be required of Agency staff, contractors, and grantees prior to its use.
- Diligent updates to this document will be made to communicate changes in standards and reflect the advancements in GPS technology that have led to common practice.
- Contribute to the realization of the National Spatial Data Infrastructure
- Ensure that the level of effort and detail are based on a common sense approach commensurate with the importance of the work, the available resources, and the unique needs of the stakeholder.

This document does not attempt to detail the specific functions of the various receivers since the rapid advancements in GPS technology would necessitate constant, diligent updates to this document. Receiver operating procedures will be covered during training sessions through the use of separate documents. The mention of trade names or commercial products does not constitute endorsement or recommendation for

use.

Background

A survey conducted jointly by the EPA Data Acquisition Branch (DAB) of the Office of Information Collection in the Office of Environmental Information and the US EPA Geospatial Quality Council (GQC) determined that the approach to GPS data collection and disposition throughout the EPA was inconsistent. GQC literature research determined that existing documents were technically outdated and did not address legal considerations, data disposition, and information management. This document is intended to fill that gap and be treated as a living document by the EPA Office of Information Collection.

Activities

To achieve the vision and goals, the *GPS-TIG* will serve as a reference guide for the Agency and its stakeholders who will be using GPS equipment and also the individual(s) responsible for the maintenance of this equipment.

Agency-wide teams are currently working to:

- Promote the use of the GPS-TIG.
- Ensure that the GPS-TIG remains a living document.
- Ensure that EPA locational data gathering activities integrate with the *Geospatial Blueprint*, Geospatial One-Stop and other E-gov Initiatives.

Achievements

By utilizing the strength of organization and discipline diversity, the OIC in concert with the GQC has authored and gained the acceptance of the GPS-TIG as the guidance document for GPS data collection.

Implementation of the GPS-TIG will, in part, support the *Geospatial Blueprint* and enable EPA and its stakeholders to:

- Integrate and analyze information based on quality locational information in support of business operations within and across EPA Programs.
- Decrease the time necessary to gather locational data for responding to emergency situations.
- Find and use geospatial data in an easy and timely manner.
- Ensure interoperability of geospatial data, applications, and products within EPA and with all partners through Web-based GeoServices and open standards.
- Increase locational data operational efficiencies, reduce duplication, and decrease costs to individual programs and the enterprise as a whole.

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